

Patent Claims

- 5 1. Substrates which have been surface-modified by means of colorants, characterised in that they are encased with one or more layers of immobilised LCST and/or UCST polymers.
- 10 2. Substrates which have been surface-modified by means of colorants according to Claim 1, characterised in that the polymer encasing has layer thicknesses of 2 - 500 nm.
- 15 3. Substrates which have been surface-modified by means of colorants according to Claim 1 or 2, characterised in that the LCST polymers are selected from the group consisting of polyalkylene oxide derivatives, olefinically modified PEO-PPO copolymers, polymethyl vinyl ether, poly-N-vinylcaprolactam, ethyl(hydroxyethyl)celluloses, poly(N-isopropylacrylamides) and polysiloxanes, and mixtures thereof.
- 20 4. Substrates which have been surface-modified by means of colorants according to Claim 1 or 2, characterised in that the UCST polymers are selected from the group consisting of polystyrenes, polystyrene copolymers and polyethylene oxide copolymers, or mixtures thereof.
- 25 5. Substrates which have been surface-modified by means of colorants according to one of Claims 1 to 3, characterised in that the LCST polymer is a polysiloxane which has been modified by means of olefinic groups or is a polyether.
- 30 6. Substrates which have been surface-modified by means of colorants according to one of Claims 1 to 5, characterised in that the polymer encasing additionally comprises nanoparticles, polymerisable monomers, plasticisers, antioxidants, carbon black particles, microtitanium or mixtures thereof.
- 35 7. Substrates which have been surface-modified by means of colorants according to Claim 6, characterised in that the polymer encasing

comprises from 0.001 to 150% by weight of additives, based on the polymer employed.

- 5 8. Substrates which have been surface-modified by means of colorants according to one of Claims 1 to 7, characterised in that the substrates are holographic pigments, pearlescent pigments, interference pigments, multilayered pigments, metal-effect pigments, gonio-chromatic pigments, BiOCl pigments, mica, Al_2O_3 flakes, glass flakes and/or SiO_2 flakes.
- 10 9. Substrates which have been surface-modified by means of colorants according to Claim 8, characterised in that the effect pigments are based on natural or synthetic mica, Al_2O_3 flakes, TiO_2 flakes, SiO_2 flakes, Fe_2O_3 flakes, glass flakes, ceramic flakes or graphite flakes.
- 15 10. Substrates which have been surface-modified by means of colorants according to one of Claims 1 to 9, characterised in that the colorants are Cu Phthalocyanine Blue, Heliogen Blue, Carmine Red, Berlin Blue, azo pigments, azo dyes, perylene pigments, liquid crystal polymers, fluorescent pigments or mixtures thereof.
- 20 11. Process for the preparation of substrates which have been surface-modified by means of colorants according to Claim 1, characterised in that the LCST and/or UCST polymer is applied to the substrate surface and irreversibly immobilised by precipitation in water and/or an organic solvent.
- 25 12. Process according to Claim 11, characterised in that conventional additives are added to the polymer.
- 30 13. Use of the substrates which have been surface-modified by means of colorants according to Claim 1 in surface coatings, water-borne coatings, powder coatings, paints, printing inks, security printing inks, plastics, concrete, in cosmetic formulations, in agricultural sheeting and tarpaulins, for the laser marking of papers and plastics, for laser
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welding, as light protection, as pigment for corrosion protection and for the preparation of pigment compositions and dry preparations.

- 5 14. Formulations comprising the surface-modified substrates according to Claim 1.

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